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In the alluvial plains of northern India, the observed deflections are in opposition to both the topography and to the theory of isostasy. We have here:

Mean observed deflection.....	5" south.
Mean topographic deflection.....	10" north.
Mean Hayfordian deflection on the hypothesis of isostasy.....	1" north.

The southerly deflections prevailing throughout the northern portion of the Peninsula cannot be accounted for by the hypothesis of isostasy nor can they be attributed to the topography. In the central portion, on the other hand, northerly deflections are met with which are less at variance with the results due to the topography.

The value of Colonel Burrard's work will be enhanced by a comparison of the relation between its results and the geology of the regions investigated. The subject of gravity anomalies in the United States has been investigated by Bowie* who found that, while they appear to be very small, they are related to the surface geologic formation. The study of the origin of any mountain chain, however, is necessarily subordinate to the collation of data afforded by all branches of human knowledge. Evidence based on results obtained along a determined line of observation is necessarily incomplete and must be supported by information derived from what may often appear to be a remote source. In the present instance, the mathematical factor introduced by geodetic computations may be said to impart weightier consideration than the tenor of the Suesian views which are based chiefly on tectonics and wherein the accumulated details refer to the larger features of the problem. A study of the physiography of the Himalayas would also probably throw further light on the genesis of the uplift. Particularly so if applied to the consideration of contemporary mountain-making agencies. More knowledge on the line of deficient density might also be obtained by geodetic observations at other points of the belt of fracture encircling the globe, especially in the northern West Indies and the Isthmus of Tehuantepec.

LEON DOMINIAN.

EMIL VON SYDOW AND THE DEVELOPMENT OF GERMAN SCHOOL CARTOGRAPHY

In the *Geographischer Anzeiger* for September, in connection with the centenary of his birth, an interesting summary is given of Emil von Sydow's influence on the development of school cartography in Germany. Born in 1812, he was trained for the army and received his officer's patent in 1830. During his studies he devoted himself especially to the geographical side of military science. This led to his appointment, three years later, as instructor of geography at the institution where he had received his training, the Military Academy at Erfurt. This position he occupied from 1833 to 1843.

He felt keenly the lack of adequate material for teaching geography, especially the lack of good wall maps. Unexpected success in the preparation of such maps in his spare hours encouraged him to approach Justus Perthes in

* "Some Relations between Gravity Anomalies and the Geologic Formation in the United States," by W. Bowie. *Amer. Jour. of Sci.*, March, 1912, pp. 237-240.

Gotha, with a view to their reproduction. The firm undertook their publication, and thus began a phase of its activities which has grown to large proportions. As von Sydow's drawings were not suited for reproduction, new ones had to be prepared. This was done in part by trained cartographers of the firm. Von Sydow himself, however, using original material in the Perthes library, undertook the representation of relief. This he considered the most important element. His conception of the ideal wall map was that it should enable the student to reproduce from memory any profile desired through the country represented.

Twenty-four maps were planned for this series of wall maps, one for each continent as a whole and several for subdivisions of the continents. In 1838 the first map, that of Asia, was published. Shortly after, young von Sydow—he was only 26 years old—received a letter from Carl Ritter speaking highly of the new map. "By its excellent arrangement," he wrote, "by the simple yet forceful treatment of its essential elements, by the avoidance of unnecessary names and by its pleasing color scheme, the map gives the impression of a direct picture of nature rather than of a mere paper surface." Maps of Europe, Africa, North and South America together, and of the world, followed during the next two years. Of the special maps only Germany was ever published, in spite of the success with which the series met, as von Sydow had in the meantime turned to other work, the preparation of a school atlas.

This atlas was published under the title of "*Methodischer Atlas für das wissenschaftliche Studium der Erdkunde*" (1842-44). Its aim and the treatment of its subject-matter were the same as those of the wall maps. To obtain a faithful picture of the relief of the earth's surface, as on the wall maps, blue was used for drainage, brown for highlands and green for lowlands. The atlas consisted of 30 maps in two parts containing general maps of the continents and special maps of Europe. A supplement was added later of maps of regions of special interest, such as the West Indies, the Near East and India.

Although the atlas was very favorably received its relatively high price prevented it from being used in the schools as extensively as von Sydow wished. He therefore undertook the preparation of another atlas. This was published in 1847-49 under the title of "*Schulatlas in 42 Blättern*." Its success is attested by the fact that up to 1880 it had passed through 32 editions. In 1888 it was entirely revised by Hermann Wagner and has since been published under the well-known title of "*von Sydow-Wagner: Methodischer Schulatlas*."

The preparation of these atlases was undertaken while von Sydow was engaged in his regular military activities. Cartography was so dear to his heart, however, that when, in 1855, the firm of Perthes invited him to join its scientific staff, he resigned from the Military Examination Board and accepted.

For five years von Sydow was connected with the Gotha geographical institute. He completed the series of outline and mute maps, intended for use as base maps or for repetition, which he had begun in 1847. This series consisted of a "*Gradnetzatlas*" (1847), showing the map net only, a "*Hydrographischer Atlas*" (1847), showing in addition the drainage systems of the regions represented, an "*Orographischer Atlas*" (1855), showing relief, a "*Hydrotopographischer Atlas*" (1855), showing drainage and the location of towns, and an "*Orohydrographischer Atlas*" (1856), showing relief and drainage. The value of this series and the soundness of the pedagogical principles underlying its preparation is again attested by its re-publication under the editorship of Dr. Hermann Haack in revised form in 1907 after a lapse of sixty years.

It was also during his connection with the Gotha institute that von Sydow began that excellent survey of current European maps which he contributed to *Petermanns Mitteilungen* under the title of "Der kartographische Standpunkt Europas" from 1857 to 1872. This survey represented a new departure in geographical criticism. The irregularity and, in part, discontinuance of various later efforts along similar lines attest the unique fitness of von Sydow in this field and the difficulty of replacing him.

In 1860 von Sydow responded to the call to return to military life. He resumed his position as member of the Examining Board and as Professor of Military Geography at the Military Academy in Berlin. In 1867 he was appointed director of the Geographical-Statistical Section of the General Staff, with which organization he was associated until his death in 1873.

Although after his departure from Gotha von Sydow was no longer able to devote his time to school cartography, his methods had taken firm root in the Perthes institute and through it made their influence felt on the general development of school cartography in Germany. For it may be said that the recognition of the physical map as the basis of all geographic work and the representation of the relief of the earth's surface by means of the now standard colors, blue, green and brown, is the work of Emil von Sydow.

GEOGRAPHICAL RECORD

NORTH AMERICA

THE TRANSCONTINENTAL EXCURSION OF 1912. As a concise report on the Excursion will be published later, only a few special matters will be referred to here. The itinerary given in abstract in the September *Bulletin* (pp. 667-668) was adhered to in every particular with two exceptions: the return from Crater Lake on September 18 was made to Medford instead of to Klamath Falls (this change had already been decided upon before the departure of the Excursion); and the forced omission of St. Louis on October 8 because of a day lost through excessive rainfall at the Roosevelt Dam. Instead, the Excursion proceeded directly from Kansas City to Memphis, arriving there at the appointed time on October 9.

If the general impression made by the Excursion were to be summarized in a few words it would be to record the amazing number of distinct geographic types passed through in eight weeks. The wonder grew, especially among the European members, at the great variety of pictures that was constantly passing before their eyes. In this very rapidity of the changing scene lay the object-lesson of the Excursion, both to Europeans and Americans, namely the secret of the power of the nation that has by the vitality of its civilization knit together into one homogeneous whole, regions of such diverse geographical nature.

On the afternoons of October 17 and 18, meetings were held in the museum of the Hispanic Society of America at which papers were presented by a number of the European members. These papers, as well as others prepared by many of the foreign guests, will be published by the Society.

On the evening of October 17 a very enjoyable reception was given at the Society's house, with music by the Kneisel quartet and songs by Mr. Henry T. Burleigh. The Transcontinental Excursion ended with a dinner in honor of